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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/556,779	04/25/2000	Seong-Hwan Moon	06192.0116	8043

7590 12/02/2002

McGuire Woods LLP  
1750 Tysons Boulevard Suite 1800  
McLean, VA 22102

EXAMINER

KUMAR, SRILAKSHMI K

ART UNIT	PAPER NUMBER
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2675

DATE MAILED: 12/02/2002

13

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/556,779

Applicant(s)

MOON ET AL.

Examiner

Srilakshmi K. Kumar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 7 and 8 is/are rejected.
- 7) ☒ Claim(s) 2-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa et al (US 6,049,322) in view of Hashimoto (US 5,973,660) and in further view of Sugimoto et al (US 5,777,610).

As to independent claim 1, Yoshikawa et al disclose in Fig. 1, a liquid crystal display (21) comprising, a signal processor (5) for generating and outputting a first image signal (out of 7) and a second image signal (out of 9), a driving control signal using an image data (into 13, 15, 17 & 19), a main control signal (out of 5), and a power source all of which are supplied from an image supplying source (from 1), the driving control signal including a source driving control

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signal including a source driving control signal and a gate driving control signal (out of 5, into 13, 15, 17, 19 & 11, respectively);

a data signal driver for generating and outputting a data signal (out of 13, 15, 17, & 19) from the first image signal and the second image signal, the gray scale voltage and the source driving control signal all of which are input from said signal processor;

a printed circuit board having a plurality of wires for transmitting the signals and/or voltages of said signal processor to the data signal driver (out of 5 into source drivers);

a gate signal driver (11) for generating and outputting a gate signal from the gate voltage and the gate driving control signal of said signal processor;

a liquid crystal display panel (21) for displaying an image formed by receiving the data signal from said data signal driver and the gate signal from said gate signal driver;

wherein the plurality of wires comprises a first group of wires for transmitting the first image signal (out of 7) and a second group of wires for transmitting the second image signal (out of 9), and the first group of wires are entirely spaced apart from the second group of wires (Fig. 1);

Yoshikawa et al fail to disclose a gray scale voltage. Hashimoto discloses a matrix liquid crystal display including gray level voltage (Fig. 1, item 6) and a gray level voltage generator (16). It would have been obvious to incorporate the features of Hashimoto into that of Yoshikawa et al as they both disclose LCD displays. The addition of the features of Hashimoto is advantageous as it consumes less power and is more efficient.

Yoshikawa et al and Hashimoto do not disclose a printed circuit board. Sugimoto et al disclose a printed circuit board (Fig. 4) for a display device. Yoshikawa et al, Hashimoto and

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Sugimoto et al all disclose a display device. It would have been obvious to one of ordinary skill in the art that Yoshikawa et al and Hashimoto all have a printed circuit board as shown by Sugimoto et al, but do not explicitly state the printed circuit board.

As to claims 7 and 8, see claim 1.

***Allowable Subject Matter***

4. Claims 2-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claim 2, the prior art of record, Yoshikawa et al, Hashimoto and Sugimoto et al do not show the detail of where the data signal driver comprises at least four source drive integrated circuits and is physically, electrically connected to said liquid crystal display panel by a connecting member mounting the source drive integrated circuits one to one.

Claims 3-6 are objected to as they depend upon an objected base claim.

***Response to Arguments***

5. Applicant's arguments filed September 3, 2002 have been fully considered but they are not persuasive.

Applicant discloses that the prior art Yoshikawa teaches away from the first group of wires are positioned separately from the second group of wires. Applicant states that the two groups of wires must not overlap. Claim 1 of the application does not explicitly state where the wires must not overlap, only that they be "entirely spaced apart". As disclosed in the Advisory Action, dated October 2, 2002, the phrase "entirely spaced apart" does not necessarily mean not

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overlapping. Further Fig. 1, shows the first group of wires (from item 7) to be entirely spaced apart from the second group of wires (from item 9). Thus the above rejection is maintained.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Srilakshmi K. Kumar** whose telephone number is **(703) 306 5575**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Saras, can be reached at (703) 305-9720.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

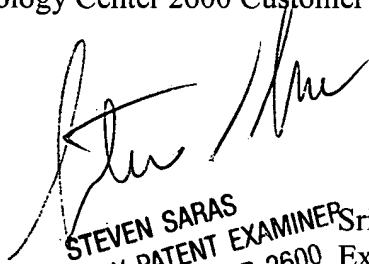
Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

  
**STEVEN SARAS**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**  
**Srilakshmi K. Kumar**  
**Examiner**  
**Art Unit 2675**

SKK  
November 27, 2002